What is claimed is:

1. A water-absorbing composite, comprising water-absorbing polymer particles immobilized on a fibrous substrate wherein at least a part of said water-absorbing polymer particles comprise primary particles having an average particle diameter of about 50-1000 μm, wherein about 30 % by weight or more of said primary particles are combined to form agglomerates having a shape satisfying the following conditions while nearly maintaining their primary particle shapes and a part of particles of said agglomerates are not adhered to said fibrous substrate:

Average particle diameter (D) $100 \leq D \leq 3000$ μm

Average relative displacement of the direction by direction analysis (θ) $10 \leq \theta \leq 25$

Frequency analysis 5 Hz/20 Hz intensity ratio (k) $0.6 \leq k \leq 0.9$

Agglomerate maximum length (L) / minimum length (l) ratio $1.2 \leq L/l \leq 15.0$.

2. The water-absorbing composite of Claim 1, wherein about 50 % by weight or more of said water-absorbing polymer particles form said agglomerates.

3. The water-absorbing composite of Claim 1, wherein about 80 % by weight or more of said water-absorbing polymer particles form said agglomerates.

4. The water-absorbing composite of Claim 1, wherein said fibrous substrate comprises synthetic fibers, natural fibers, or semisynthetic fibers or a combination thereof.

5. The water-absorbing composite of Claim 1, wherein the fibrous substrate comprises hydrophilic fibers.

6. The water-absorbing composite of Claim 5, wherein the hydrophilic fibers comprise wood pulp, rayon, cotton or cellulose fibers.

7. The water-absorbing composite of Claim 4, wherein the fibrous substrate comprises fibers of polyester, polyethylene, polypropylene, polystyrene, polyamide, polyvinyl alcohol, polyvinyl chloride, polyvinylidene chloride, polyacrylonitrile, polyurea, polymethane, polyfluoroethylene or polyvinylidene cepanide.

8. The water-absorbing composite of Claim 4, wherein the fibrous substrate comprises paper, wood or leather.

9. The water-absorbing composite of Claim 1, wherein said primary particles

have an average particle diameter of about 100-900 μm.

10. The water-absorbing composite of Claim 9, wherein said primary particles have an average particle diameter of about 200-800 μm.

11. The water-absorbing composite of Claim 1, wherein said agglomerates have an average particle diameter of about 200-2,000 μm.

12. The water-absorbing composite of Claim 11, wherein said agglomerates have an average particle diameter of about 250-2,000 μm.

13. The water-absorbing composite of Claim 1, wherein said agglomerates exhibit an average relative displacement of the direction by direction analysis (θ) of from 12-24.

14. The water-absorbing composite of Claim 13, wherein said agglomerates exhibit an average relative displacement of the direction by direction analysis (θ) of from 14-22.

15. The water-absorbing composite of Claim 1, wherein said agglomerates exhibit a frequency analysis 5 Hz/20 Hz intensity ratio (k) of from 0.65-0.85.

16. The water-absorbing composite of Claim 15, wherein said agglomerates exhibit a frequency analysis 5 Hz/20 Hz intensity ratio (k) of from 0.65-0.80.

17. The water-absorbing composite of Claim 1, wherein said agglomerates have a maximum length (L)/minimum length (l) of from 1.5-10.0.

18. The water-absorbing composite of Claim 17, wherein said agglomerates have a maximum length (L)/minimum length (l) of from 1.5-8.0.

19. The water-absorbing composite of Claim 1, which comprises said water-absorbing polymer particles in an amount of from about 50-300 g/m^2.

20. The water-absorbing composite of Claim 19, which comprises said water-absorbing polymer particles in an amount of from about 100-250 g/m^2.

21. The water-absorbing composite of Claim 20, which comprises said water-absorbing polymer particles in an amount of from about 130-220 g/m^2.

22. The water-absorbing composite of Claim 1, wherein said agglomerates are formed by polymerizing an aqueous ethylenically unsaturated monomer solution with a redox polymerization initiator.

23. The water-absorbing composite of Claim 1, which is produced by forming

droplets of a reaction mixture initialized by mixing an aqueous solution of a polymerizable monomer giving a water-absorbing polymer with a redox polymerization initiator in a gas phase, combining said droplets into agglomerates while nearly maintaining their primary particle shapes in the gas phase and/or on a fibrous substrate, supporting said agglomerates formed in the gas phase on said fibrous substrate, and then completing polymerization of said agglomerates on said fibrous substrate to immobilize said agglomerates on said fibrous substrate.

24. A process for preparing a water-absorbing composite, comprising the steps of

a) forming droplets of a reaction mixture initiated by mixing an aqueous solution of a polymerizable monomer giving a water-absorbing polymer with a redox polymerization initiator in a gas phase;

b) combining said droplets into agglomerates while nearly maintaining their primary particle shapes in the gas phase or on a fibrous substrate, or both;

c) supporting said agglomerates formed in the gas phase on said fibrous substrate; and then

d) completing polymerization of said agglomerates on said fibrous substrate to immobilize said agglomerates thereon.

25. The process of Claim 24, wherein said polymerizable monomer has a polymerization degree of about 20-97 % when it comes into contact with said fibrous substrate.

26. The process of Claim 24, wherein said droplets of a reaction mixture are formed by mixing a first solution containing an oxidizing agent forming the redox polymerization initiator and the aqueous polymerizable monomer solution and a second solution containing a reducing agent forming the redox polymerization initiator and the aqueous polymerizable monomer solution in a gas phase.

27. The process of Claim 26, wherein said mixing is performed by colliding said first solution and said second solution in a liquid column state.

28. The process of Claim 24, wherein said polymerizable monomer is based on an aliphatic unsaturated carboxylic acid or a salt thereof.

29. The process of Claim 24, wherein said polymerizable monomer is based on acrylic acid in which 20 mol % or more of the carboxyl group is neutralized into an

alkali metal salt or an ammonium salt.

30. The process of Claim 24, wherein the oxidizing agent forming said redox polymerization initiator is hydrogen peroxide and the reducing agent is L-ascorbic acid or an L-ascorbic acid alkali metal salt.

31. The process of Claim 24, wherein said fibrous substrate comprises synthetic fibers, natural fibers, or semisynthetic fibers.

32. A water-absorbing article, comprising a water-absorbing material having water-absorbing polymer particles immobilized on one side of a fibrous substrate so that said water-absorbing polymer particles absorb aqueous liquids through said fibrous substrate, wherein at least a part of said water-absorbing polymer particles consist of primary particles having an average particle diameter of about 50-1000 μm, wherein about 30 % by weight or more of said primary particles are combined to form agglomerates having a shape satisfying the conditions below while nearly maintaining their primary particle shapes and a part of particles of said agglomerates are not adhered to said fibrous substrate:

Average particle diameter (D) $100 \leq D \leq 3000$ μm

Average relative displacement of the direction by direction analysis (θ) $10 \leq \theta \leq 25$

Frequency analysis 5 Hz/20 Hz intensity ratio (k) $0.6 \leq k \leq 0.9$

Agglomerate maximum length (L)/minimum length (l) ratio $1.2 \leq L/l \leq 15.0$.

33. A water-absorbing article, comprising a water-absorbing material having water-absorbing polymer particles immobilized on one side of a fibrous substrate so that said water-absorbing polymer particles absorb aqueous liquids through said fibrous substrate, wherein immobilization of said water-absorbing polymer particles comprises the steps of:

a) forming droplets of a reaction mixture initialized by mixing an aqueous solution of a polymerizable monomer giving a water-absorbing polymer with a redox polymerization initiator in a gas phase,

b) combining said droplets into agglomerates while nearly maintaining their primary particle shapes in the gas phase or on a fibrous substrate or both,

c) supporting said agglomerates formed in the gas phase on said fibrous substrate, and then

d) completing polymerization of said agglomerates on said fibrous substrate to immobilize said agglomerates on said fibrous substrate.

34. The water-absorbing article of Claim 32, wherein said fibrous substrate is in the form of a sheet.

35. The water-absorbing article of Claim 34, wherein said fibrous substrate is a nonwoven cloth.

36. The water-absorbing article of Claim 35, wherein said fibrous substrate is a nonwoven cloth consisting of fibers having a diameter of about 10-50 μm.

37. The water-absorbing article of Claim 32, wherein said fibrous substrate has a basic weight of about 10-100 g/m^2.

38. The water-absorbing article of Claim 32, wherein the surfaces of said water-absorbing polymer particles are crosslinked.

39. The water-absorbing article of Claim 32, wherein said water-absorbing polymer particles are immobilized on said fibrous substrate at 50-300 g/m^2.

40. The water-absorbing article of Claim 32, wherein a fluffy pulp layer is provided on the water-absorbing polymer particle side of said water-absorbing material.

41. The water-absorbing article of Claim 40, wherein a fluffy pulp layer is provided on each side of said water-absorbing material and the fluffy pulp layer provided on the water-absorbing polymer particle side has a greater basic weight than that of the fluffy pulp layer provided on the fibrous substrate side.

42. The water-absorbing article of Claim 40, wherein the fluffy pulp layer provided on the water-absorbing polymer particle side of said water-absorbing material has a basic weight of about 80-250 g/m^2.

43. The water-absorbing article of Claim 33, wherein said fibrous substrate is in the form of a sheet.

44. The water-absorbing article of Claim 43, wherein said fibrous substrate is a nonwoven cloth.

45. The water-absorbing article of Claim 44, wherein said fibrous substrate is a nonwoven cloth consisting of fibers having a diameter of about 10-50 m.

46.The water-absorbing article of Claim 33, wherein said fiberous substrate has a basic weight of about 10-100 g/m^2

47. The water-absorbing article of Claim 33, wherein the surfaces of said water-absorbing polymer particles are crosslinked.

48. The water-absorbing article of Claim 33, wherein said water-absorbing polymer particles are immobilized on said fibrous substrate at 50-300 g/m^2.

49. The water-absorbing article of Claim 33, wherein a fluffy pulp layer is provided on the water-absorbing particle side of said water-absorbing material.

50. The water-absorbing article of Claim 49, wherein a fluffy pulp layer is provided on each side of said water-absorbing material and the fluffy pulp layer provided on the water-absorbing polymer particle side has a greater basic weight than that of the fluffy pulp layer provided on the fiberous substrate side.

51. The water-absorbing article of Claim 49, wherein the fluffy pulp layer provided on the water-absorbing polymer particle side of said water-absorbing material has a weight of about 80-250 g/m^2.